

Cell 1

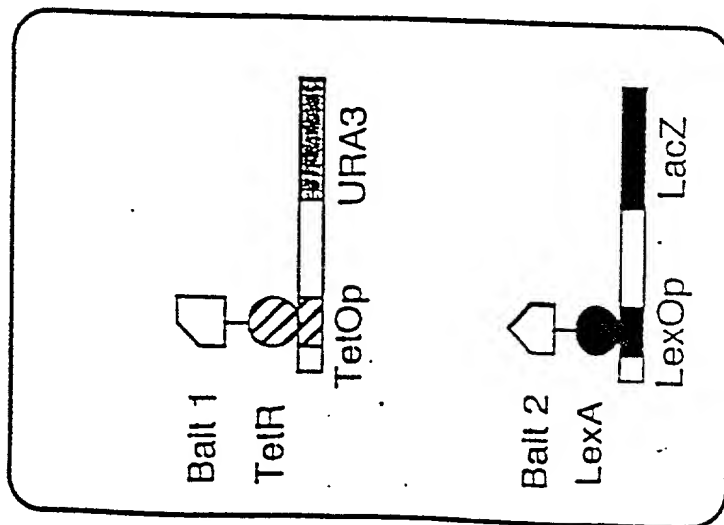


FIG. 1A

Cell 2

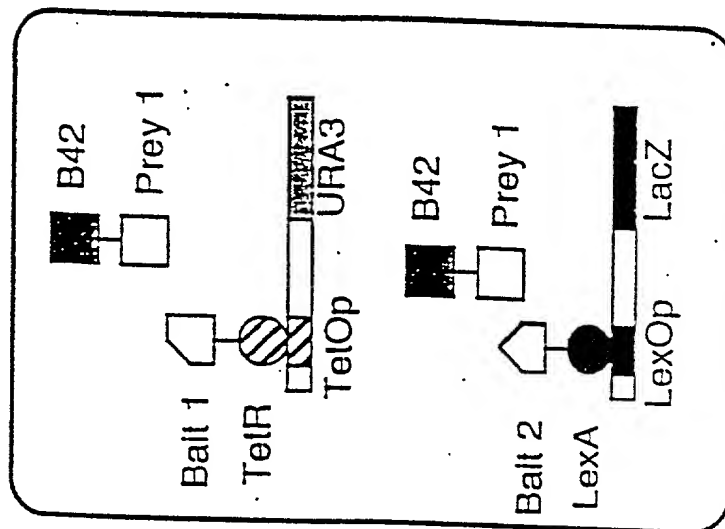


FIG. 1B

Cell 3

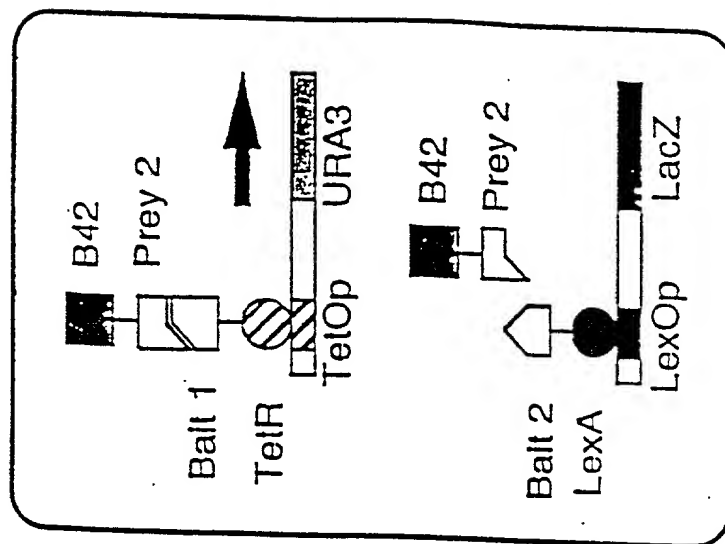


FIG. 1C



FIG. 3A

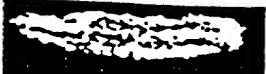

Cell	LacZ Output	$\beta$ -Galactosidase Activity
1		22.6 $\pm$ 3.3
2		7.4 $\pm$ 1.0

FIG. 3B

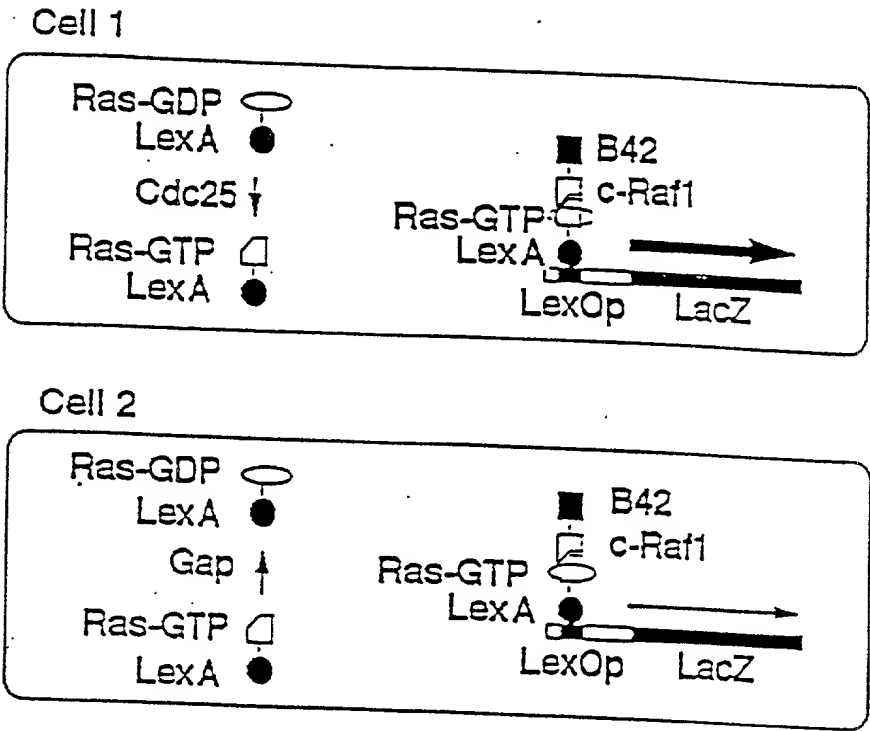


FIG. 3C

Input Values		LacZ Output
1 (B42-c-Raf1)	0 (GAP)	0
1 (B42-c-Raf1)	1 (Cdc25)	1

# Logical Not

$\alpha$  factor = 0

TGF- $\beta$  = 1

Input  $\alpha$ -factor, output TGF- $\beta$

Input TGF- $\beta$ , output  $\alpha$  factor

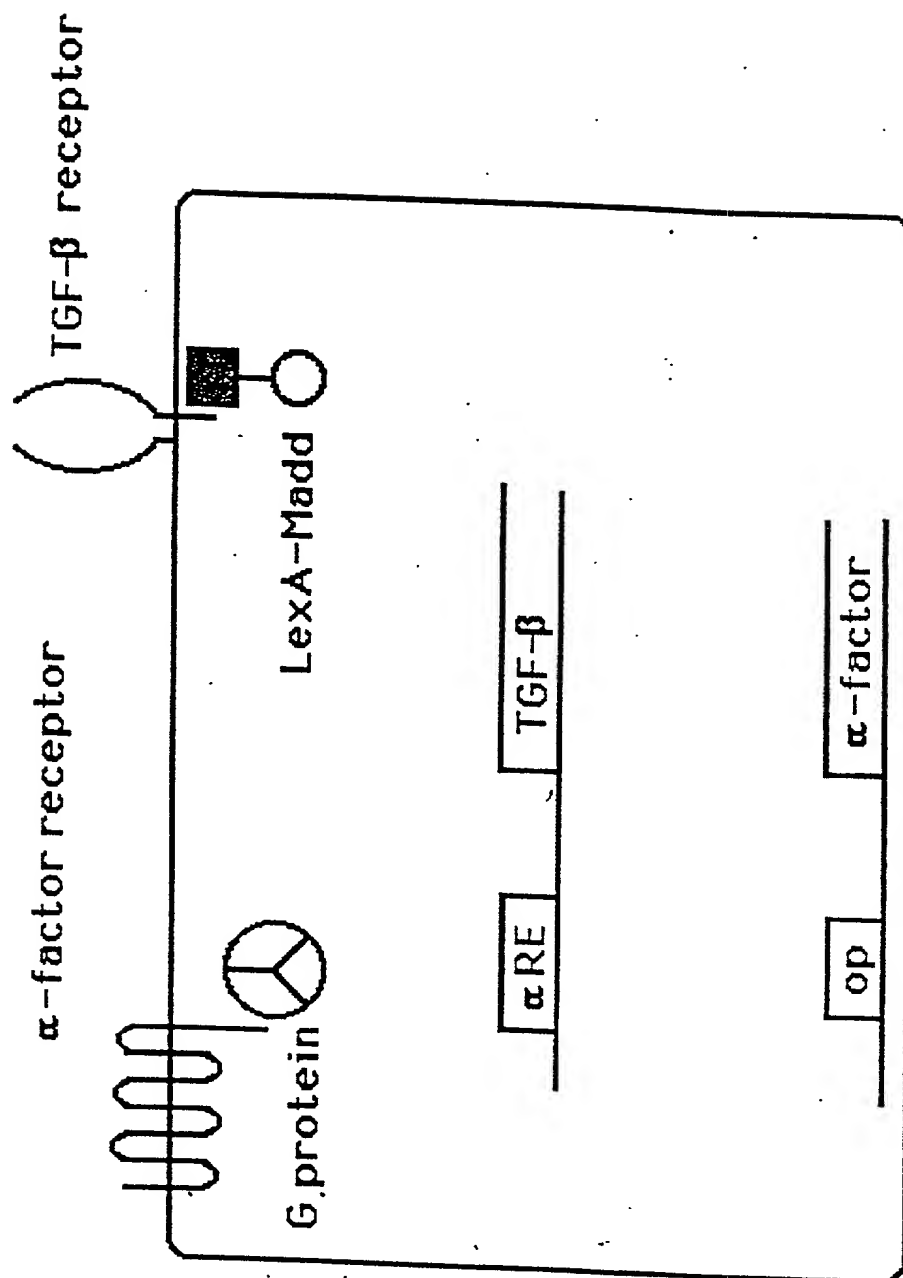


FIG. 4

Four input output channels  
(variety of possible  
logical operations)

Inputs	Receptors
$\alpha$ factor	$\alpha$ factor R
TGF- $\beta$	TGF- $\beta$ R
Delta	Notch
Bradykinin	Bradykinin R

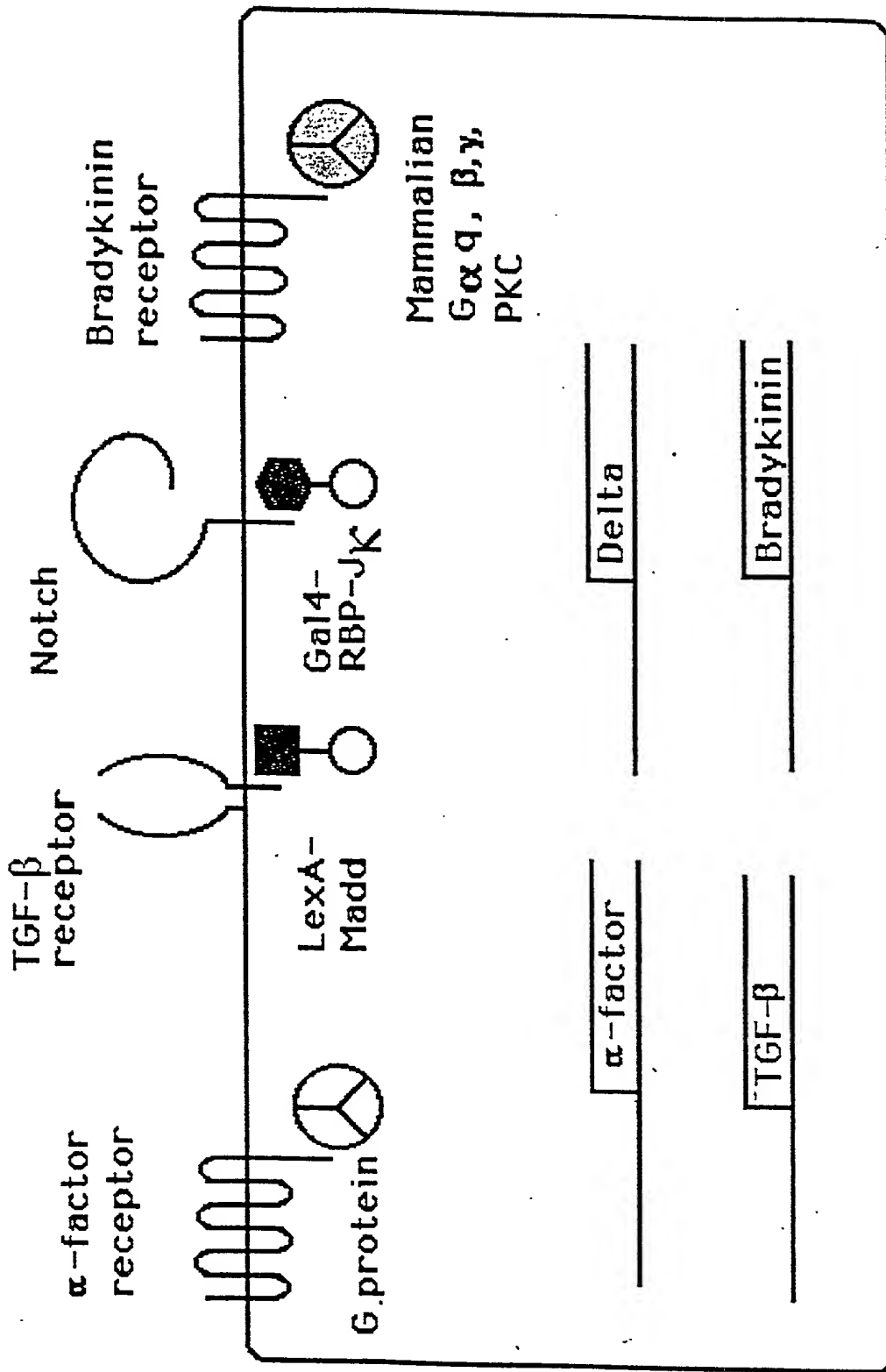


FIG. 5

# Fluorescence resonance energy transfer "transistor"

No green light input	Green light input
HIV protease linker intact	Linker cleaved
Blue light input	Blue light input
Green light output	No green fluorescence

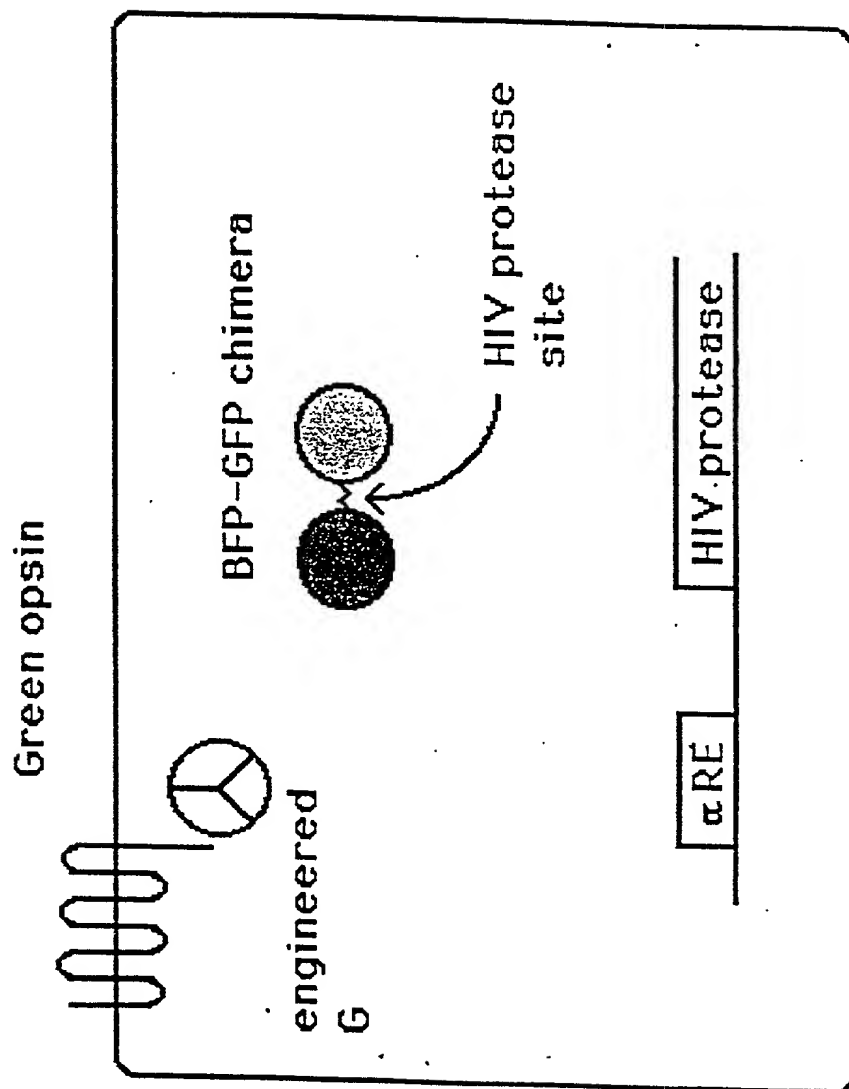


FIG. 6